

# 2001 Annual Ocean and Bay Water Quality Report

MAY 2002



# **2001 Annual Ocean and Bay Water Quality Report**



Seal Beach Pier

**County of Orange ♦ Health Care Agency ♦ Environmental Health  
May 2002**



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## **Acknowledgments**

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- South Orange County Wastewater Authority

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**Main Beach, Laguna Beach**

## **EXECUTIVE SUMMARY**

This first "2001 Annual Ocean and Bay Water Quality Report" provides an analysis of bacteriological water quality for the 112 miles of Orange County's ocean and bay waters for the years 2000 and 2001, representing the first two full calendar years of Assembly Bill 411 (AB 411) Ocean Water-Contact Sports Standards implementation. It is critical to accurately develop a baseline of bacteriological trends that may be used as a measurement tool for the ongoing assessment of Orange County's ocean and bay waters and to provide this information to the public. As well as bacteriological data analysis, the Report incorporates recent and historical sewage spills, and ocean and bay water closure data from 1987 to the present.

### **Major findings of the 2001 Annual Ocean and Bay Water Quality Report are:**

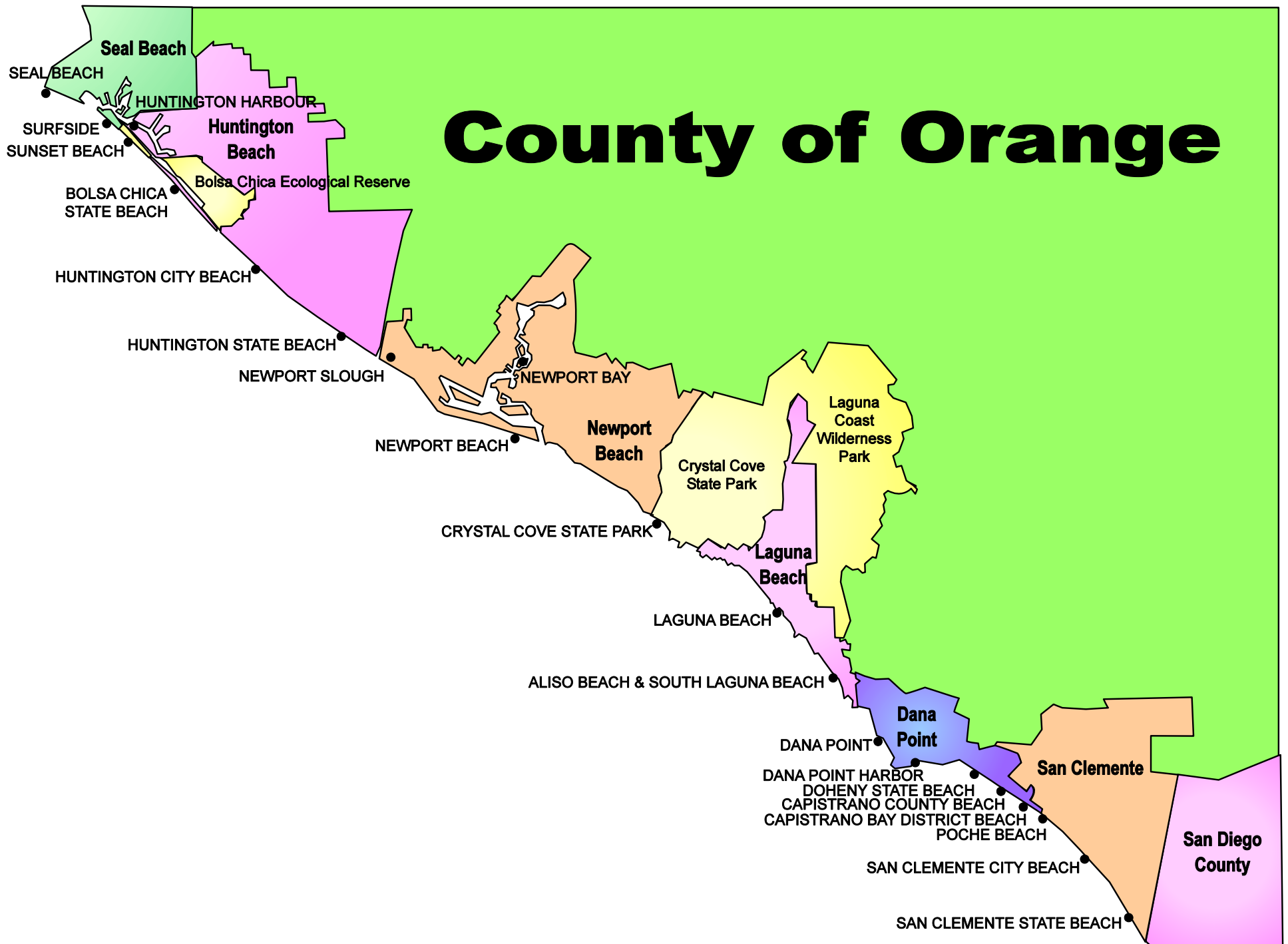
#### **Sewage Spills and Closures:**

- ◆ The total number of sewage spills reported to the Health Care Agency has steadily increased over the past 15 years.
- ◆ The total number of ocean and bay water closures due to sewage spills has increased each year since 1999.
- ◆ The total number of closure Beach Mile Days due to sewage spills has remained constant since 1999 (the first year of Beach Mile Day calculations).
- ◆ During the years 1999 through 2001, 61% of all ocean and bay water sewage related closures were caused by sewer pipeline blockages, primarily due to roots and grease.

#### **Postings:**

- ◆ The total number of postings and the total number of days posted due to AB 411 water quality standards violations remained constant from 2000 to 2001.
- ◆ The total number of Beach Mile Days posted due to AB 411 water quality standards violations decreased from 2000 to 2001.
- ◆ Violations of the AB 411 enterococcus standard accounted for 63% of the ocean and bay water postings for 2000 and 60% for 2001.
- ◆ The total number of Beach Mile Days posted due to AB 411 water quality standards violations increased at Huntington Harbour, Newport Bay, Dana Point Harbor, Doheny State Beach and Poche Beach from 2000 to 2001.

The 2001 Annual Ocean and Bay Water Quality Report provides information and data which may be used by elected officials, governmental agencies, environmental groups, and all other interested parties to focus on the critical issues facing recreational waters in Orange County.



## **THE OCEAN WATER PROTECTION PROGRAM**

As part of the Orange County Health Care Agency (HCA), the Environmental Health Division's Ocean Water Protection Program is responsible for protecting the public from exposure to ocean and bay water that may be contaminated with sewage or may cause illness due to elevated bacteria levels along the County's 42 miles of open ocean coastline and 70 miles of harbor and bay shoreline. Ocean and bay waters used for full body-contact recreational activities such as swimming, surfing, and diving must meet specific bacteriological standards to be considered safe for such purposes.

Over the past 40 years, the Health Care Agency and local sanitation agencies (Orange County Sanitation District and South Orange County Wastewater Authority) have been testing the coastal waters in Orange County for bacteria that indicate the possible presence of disease-causing organisms. Along with the sanitation agencies, HCA program staff participate in the weekly collection of water samples at approximately 150 ocean, bay and drainage locations throughout coastal Orange County. Every day program staff review the results of bacteriological water samples and issue ocean and bay water closures, postings and health advisories under the requirements stipulated by the California Health and Safety Code and Title 17 of the California Code of Regulations. When the results of testing indicate that health standards have been exceeded, the sampling frequency and locations may increase until the sample results meet established standards and/or the source of the problem is eliminated. In addition, the Ocean Water Protection Program staff responds on a 24-hour basis to investigate reports of sewage or other contamination incidents affecting Orange County's public beaches.

The Ocean Water Protection Program maintains an Ocean and Bay Water Posting and Closure Hotline and Web Page. The Ocean and Bay Water Closure and Posting Hotline phone number is (714) 667-3752. The Ocean and Bay Water Closure and Posting Web Page address is [www.ocbeachinfo.com](http://www.ocbeachinfo.com).



**Coral Cay Beach, Huntington Harbour, Huntington Beach**

## ***Ocean Water-Contact Sports Standards - Assembly Bill 411***

In 1999, new bacteriological ocean water quality standards that are more protective of public health were added to the California Health and Safety Code. The new standards are informally called AB 411 Ocean Water-Contact Sports Standards and include the following:

- ◆ Required testing of the waters adjacent to all public beaches for total coliform, fecal coliform, and enterococcus bacteria that are indicators of possible disease-causing bacteria, viruses and protozoa.
- ◆ Established single sample standards for total coliforms, fecal coliforms, and enterococci bacteria as follows:
  - ◆ Total Coliforms: 10,000 organisms per 100 milliliter sample.
  - ◆ Fecal Coliforms: 400 organisms per 100 milliliter sample.
  - ◆ Enterococci: 104 organisms per 100 milliliter sample.
  - ◆ Fecal:Total ratio: >1000 total coliforms if ratio exceeds 0.1.
- ◆ Established 30-day geometric log mean standards (of five weekly samples) for total coliforms, fecal coliforms, and enterococci bacteria as follows:
  - ◆ Total Coliforms: 1000 organisms per 100 milliliter sample.
  - ◆ Fecal Coliforms: 200 organisms per 100 milliliter sample.
  - ◆ Enterococci: 35 organisms per 100 milliliter sample.
- ◆ When any waters adjacent to a public beach fail to meet any of the standards described above, the local health officer shall post the beach to restrict access.
- ◆ Weekly testing is required from April 1 to October 31 if all of the following apply:
  - ◆ The beach is visited by more than 50,000 people annually; and
  - ◆ The beach is located in an area adjacent to a storm drain that flows in the summer.
- ◆ In the case of a known release of sewage into ocean or bay waters adjacent to a public beach, the local health officer is required to:
  - ◆ Immediately close the affected ocean or bay waters until the source of the sewage is eliminated;
  - ◆ Collect bacterial samples from the affected waters; and
  - ◆ Continue the closure until testing results of water samples meet the established standards.



### ***Disease Causing Microorganisms***

Polluted runoff and untreated sewage released into recreational waters may result in swimmer exposure to pathogenic bacteria, viruses or protozoa. These disease-causing organisms may be present at or near the site where polluted discharges enter the water.

The following table lists the types of organisms and the diseases (or symptoms) they may cause.

<b><i>Pathogenic Agent</i></b>	<b><i>Disease</i></b>
<b>Bacteria</b>	
<i>E. coli</i>	Gastroenteritis
<i>Salmonella (not typhi)</i>	Gastroenteritis, usually with fever; less commonly septicemia (generalized infection - organisms multiply in the bloodstream)
Some strains of <i>Shigella</i>	Gastroenteritis, usually with fever
<b>Protozoa (Intestinal Parasites)</b>	
<i>Cryptosporidium</i>	Diarrhea - Cryptosporidiosis
<i>Giardia lamblia</i>	Diarrhea - Giardiasis
<b>Viruses</b>	
Rotavirus	Gastroenteritis
Enteroviruses	Respiratory, rash, febrile illnesses; meningitis
Norwalk and Norwalk-like viruses	Gastroenteritis
Adenovirus	Respiratory and gastrointestinal infections
Hepatitis A (outbreaks associated with eating shellfish from sewage-contaminated water)	Infectious hepatitis (liver malfunction)

The levels of bacteria, viruses and protozoa decrease over time due to the following reasons:

- ◆ Die off due to sun, salt water or age;
- ◆ Predation by other organisms; and
- ◆ Dilution.

## Warning Signs

This warning sign with the yellow and black border is posted near storm drains, creeks and rivers to advise the public of the risks associated with possible contamination from urban runoff.



This warning sign with the red and black border is posted when a violation of the AB 411 Ocean Water-Contact Sports Standards occurs.



This yellow closure sign is posted when a release of raw sewage affects waters adjacent to a public beach.



## ***Beach Mile Days***

The term "Beach Mile Days" is used to present the measurement of the number of days and the area of ocean or bay waters that are closed due to a sewage spill or posted for a violation of the AB 411 Ocean Water-Contact Sports Standards.

Beach Mile Days (BMDs) are calculated by multiplying the number of days of a closure or posting by the number of miles of beach closed or posted:

$$(\text{Number of Days}) \times (\text{Miles of beach closed or posted}) = \text{Beach Mile Days.}$$

For example, if a sewage spill resulted in the closure of  $\frac{1}{2}$  mile of beach for 7 days then:

$$(7 \text{ days}) \times (0.5 \text{ mile}) = 3.5 \text{ Beach Mile Days of closure.}$$

The available Beach Mile Days for Orange County are:

$$(365 \text{ days}) \times (112 \text{ miles}) = 40,880 \text{ Available Beach Mile Days.}$$

Using BMDs is a more meaningful measurement of ocean and bay water impairment than using the number of incidences or the number of days since BMDs take into account both the amount of beach and the length of time of a closure or posting.

The California State Water Resources Control Board and all California coastal counties use BMDs for reporting closures and postings which provides a standardized measure allowing comparison of different areas (beach to beach or county to county) or assessing trends over time.



**Rocky Point Beach, Newport Bay, Newport Beach**

## **OCEAN AND BAY WATER CLOSURES DUE TO SEWAGE SPILLS**

When a discharge of sewage is reported to the Ocean Water Protection Program staff, the ocean or bay water areas that may be affected by the sewage discharge will be immediately closed to ocean water-contact sports.

The closure area is based on many factors including type of sewage (e.g., untreated, secondary treated, sewage sludge), volume of discharge, location of spill, ocean current and tides, historical sewage spills in the area, and any other pertinent information. When the initial closure area is determined, a press release is issued and the Ocean and Bay Water Closure and Posting Hotline and Web Page are updated with the beach closure information.

The ocean or bay water closure area will be reopened or reduced in size when the contamination source has been eliminated and after two daily consecutive sampling results indicate the affected area meets the AB 411 Ocean Water-Contact Sports Standards.

Status information regarding the closure is posted to the Ocean and Bay Water Closure and Posting Hotline at (714) 667-3752 and the Ocean and Bay Water Closure and Posting Web Page at [www.ocbeachinfo.com](http://www.ocbeachinfo.com).

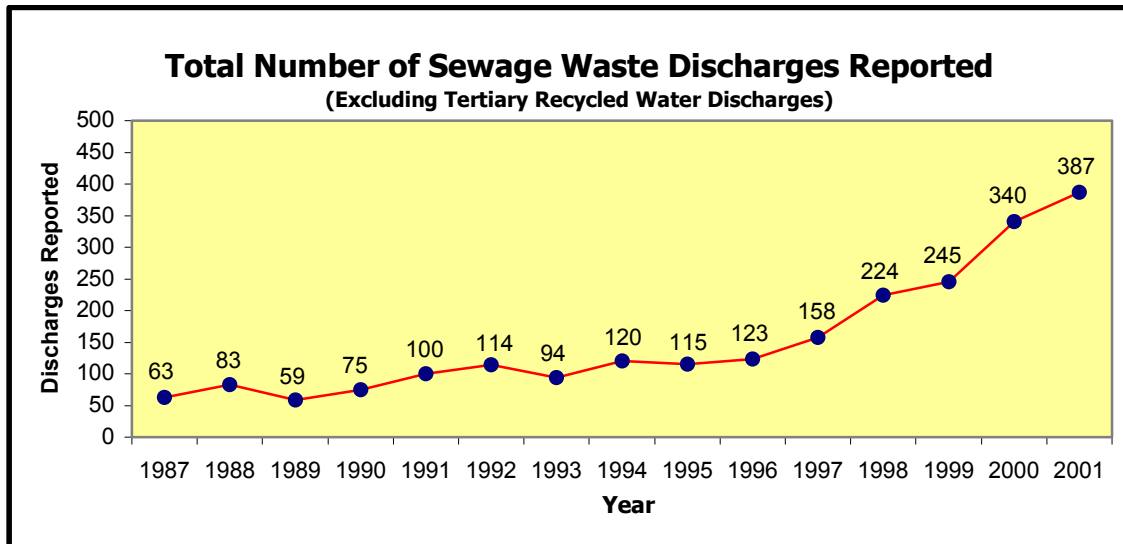




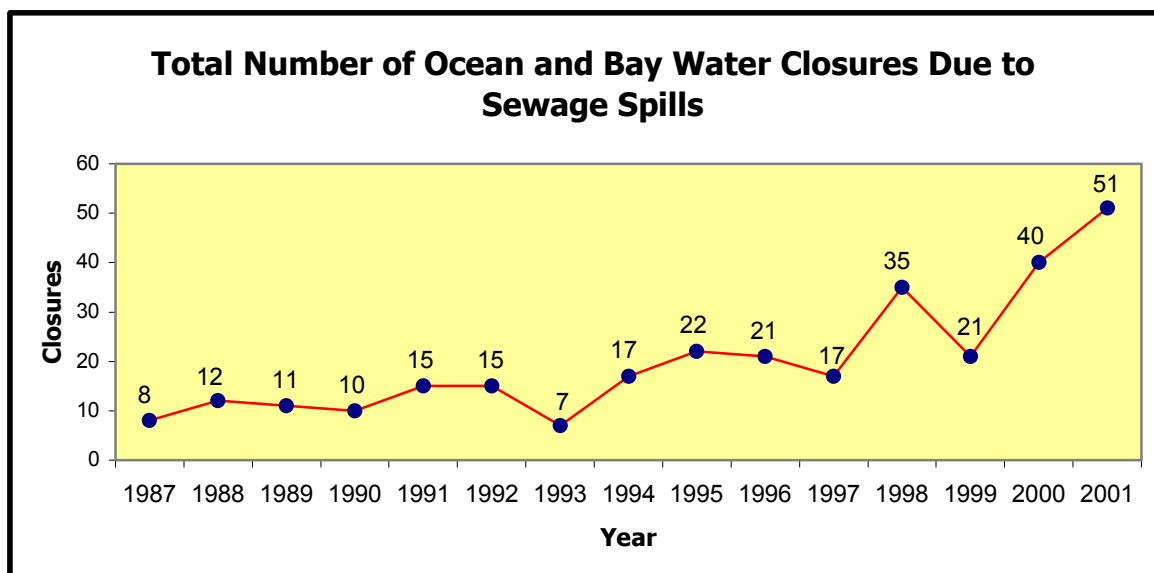
## ***Sewage Spills and Ocean and Bay Water Closures 1987 – 2001***

This section of the Report utilizes sewage spill data reported to the Ocean Water Protection Program from 1987 to 2001. Sewage spills are reported to the Health Care Agency by sanitation districts or agencies, cities that operated sewage collection systems or private property owners.

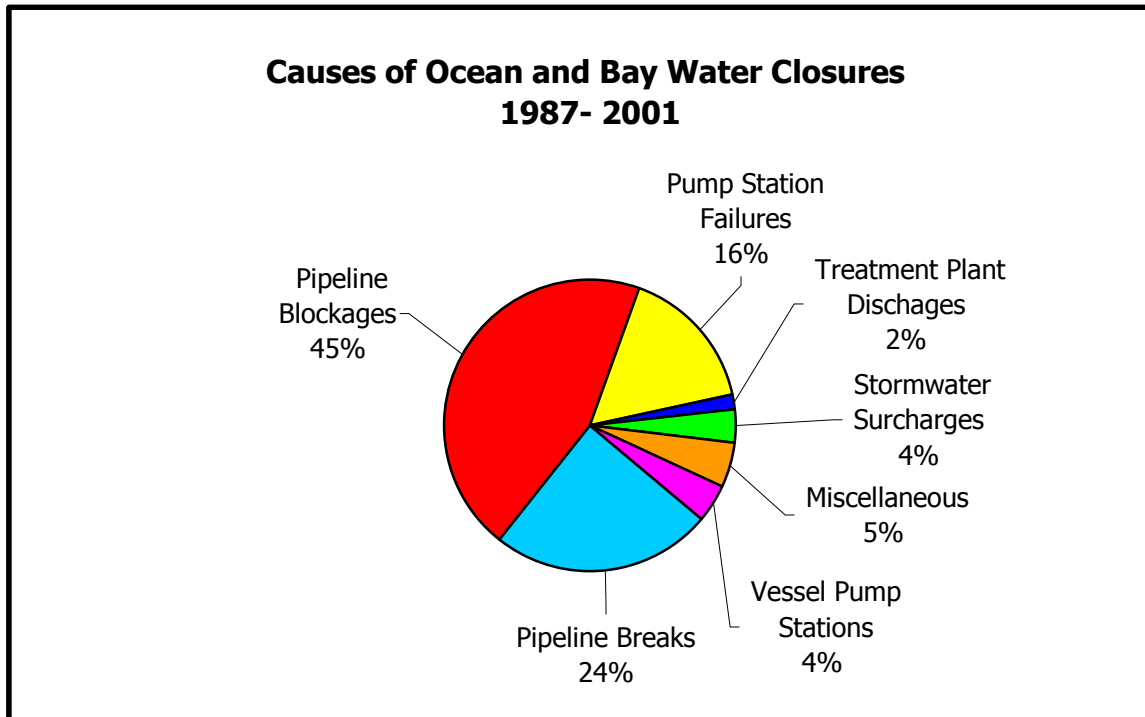
The following graph shows the increasing number of unauthorized sewage waste discharges reported to the Orange County Ocean Water Protection Program from 1987 to 2001.



The following graph shows the increasing number of ocean and bay water closures in Orange County due to sewage spills from 1987 to 2001.



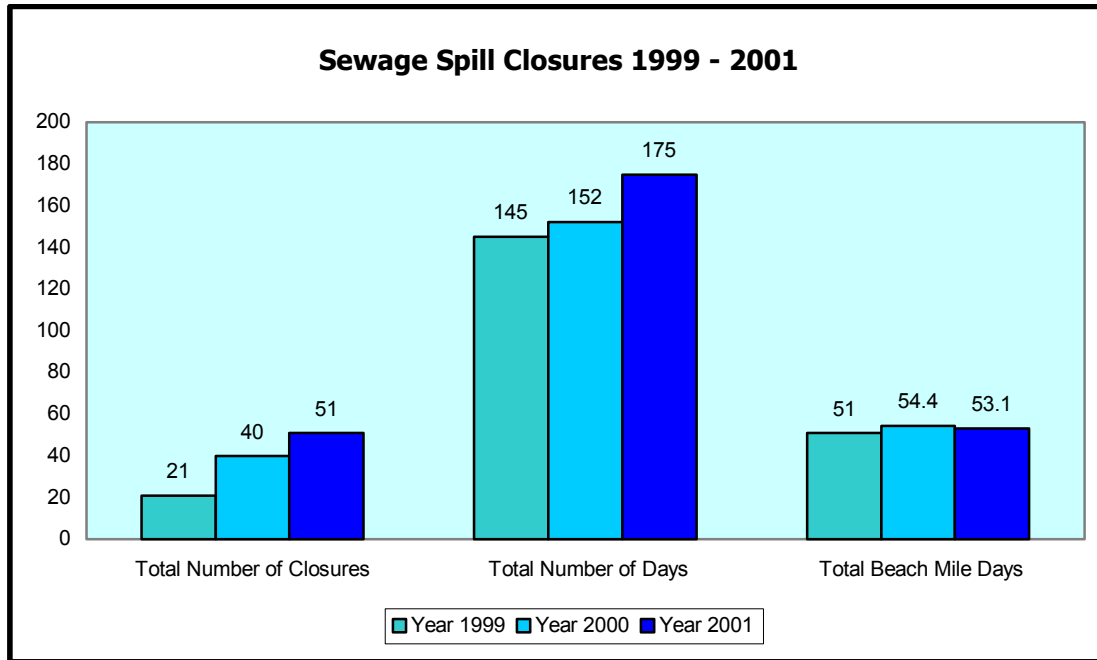
The following pie chart illustrates that sewage spills caused by pipeline blockages and pipeline breaks (69%) were responsible for the majority of the ocean and bay water closures in Orange County from 1987 – 2001.



**Crystal Cove State Beach, Newport Coast**

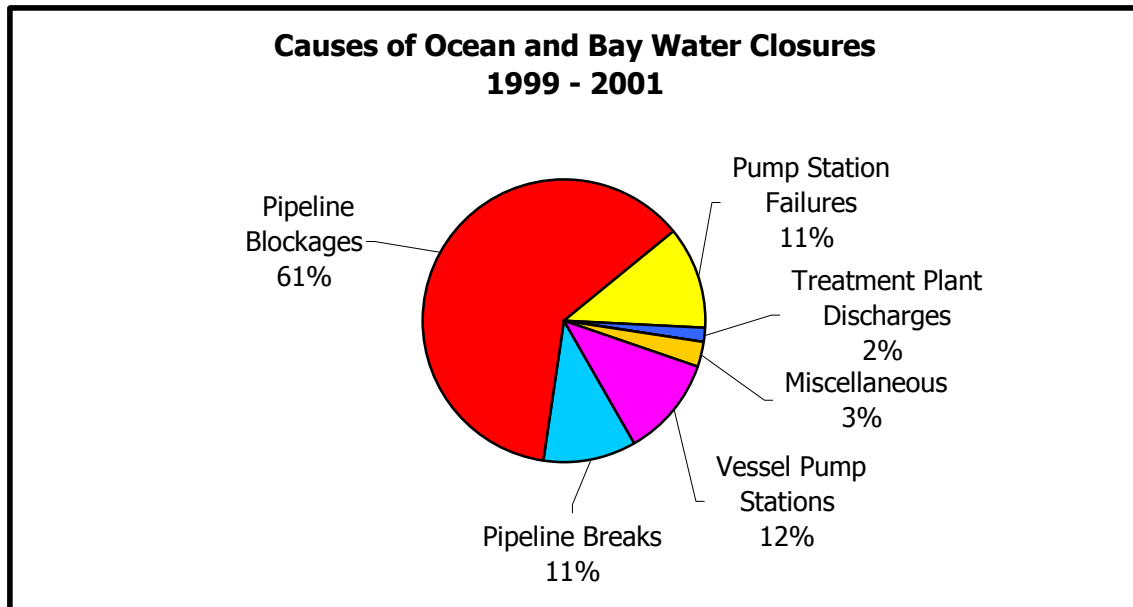
### ***Sewage Spill Caused Ocean and Bay Water Closures 1999 - 2001***

The following bar graph shows the total number of closures, total number of closure days and total number of Beach Mile Days of closure in Orange County from 1999 – 2001 due to sewage spills. Although the total number of sewage spill closures and days has increased since 1999, the total number of BMDs has remained constant.

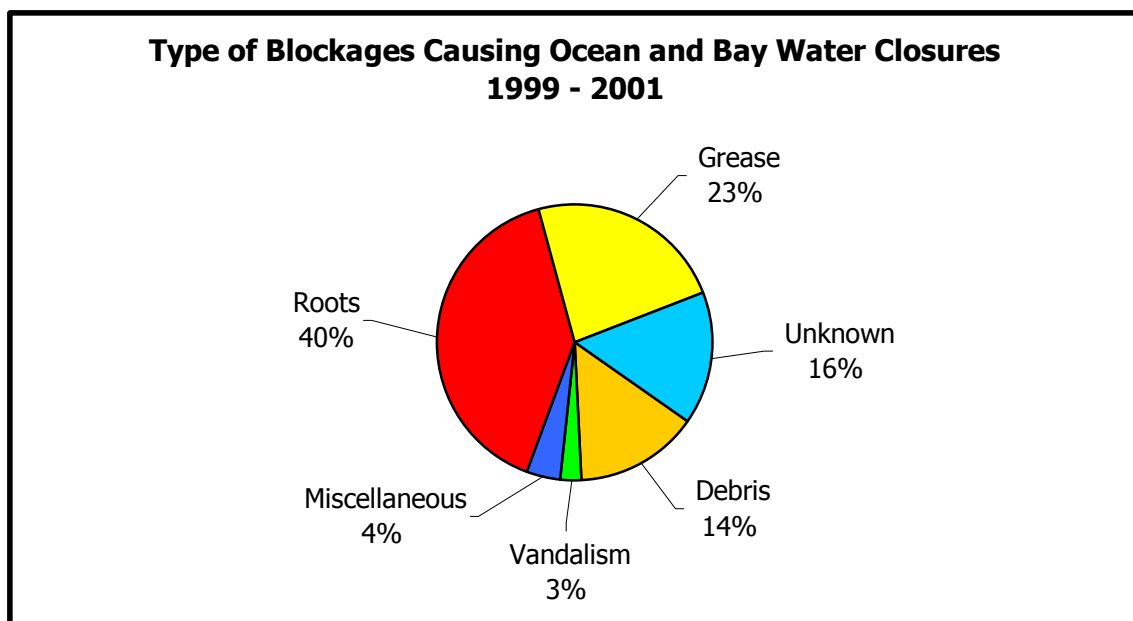


**Baby Beach, Dana Point Harbor, Dana Point**

The following pie chart illustrates that for 1999 – 2001, sewage pipeline blockages and vessel pump stations were responsible for a majority (73%) of the ocean and bay water closures in Orange County.



The following pie chart illustrates that the infiltration of roots and deposition of grease into sewer pipes accounted for a majority (63%) of the pipeline blockages that resulted in ocean and bay water closures in Orange County for 1999 – 2001.





## **OCEAN AND BAY RAIN ADVISORIES 2000 – 2001**

During and after a significant rainstorm event, storm drains, creeks and rivers carry floodwaters and urban runoff to the ocean which may include fertilizers, road oils, litter and large amounts of bacteria from a variety of sources such as animal waste and decomposing vegetation.

The level of bacteria can rise significantly in ocean and bay waters close to storm drains and outlets of creeks, rivers and streams during and after rainstorms. To ensure that public health and safety is protected, the Ocean Water Protection Program staff advises against the use of water-contact sports areas where there may be contamination of ocean and bay waters due to storm runoff. The elevated bacterial levels in the coastal ocean waters may continue for a period of at least three days depending on the intensity of the rain and the volume of runoff. Swimmers should avoid Orange County coastal waters at this time and beach users should avoid contact with any runoff on the beach during dry or wet weather conditions.

An "Ocean and Bay Rain Advisory" press release is issued during or after a rainstorm event of greater or equal to two-tenths of an inch ( $\geq 0.20"$ ), unless multiple events occur within short periods of time. The Ocean and Bay Water Closure and Posting Hotline and Web Page are updated with the rain advisory information.

The dates listed below are the periods that an "Ocean and Bay Rain Advisory" was in effect for Orange County during 2000 and 2001.

### **2000**

January 25 – February 2	April 17 – April 23
February 10 – February 16	September 23 – September 25
February 17 – February 27	October 11 – October 15
February 28 – March 13	October 27 – November 2

### **2001**

January 8 – January 16	November 12 – November 16
January 24 – January 31	November 24 – November 27
February 10 – February 16	November 29 – December 6
February 20 – March 13	December 14 – December 18
April 7 – April 13	December 21 – December 25
April 21 – April 24	December 30 – December 31

## **OCEAN AND BAY WATER POSTINGS DUE TO WATER QUALITY STANDARDS VIOLATIONS**

In July of 1999, when the Regulations for the AB 411 Ocean Water-Contact Sports Standards were promulgated, the Orange County Ocean Water Protection Program staff began posting the required health warnings signs at public beaches where the ocean and/or bay water failed to meet the new bacteriological standards.

The Ocean Water Protection Program currently reviews the results of at least 220 bacteriological water samples that are collected each week at approximately 150 ocean, bay and drainage locations throughout Orange County.

When a bacteriological water sample fails to meet any of the AB 411 Ocean Water-Contact Sports Standards the following occurs:

- ◆ Warning signs are posted at affected ocean and/or bay water areas indicating that the water has exceeded health standards.
- ◆ All the information regarding the posted areas are updated on the Ocean and Bay Water Closure and Posting Hotline and Web Page.
- ◆ Additional bacteriological water samples are collected at the posted areas and the results are evaluated daily to determine if the areas posted with warning signs should be increased, reduced, shifted or removed.

Because ocean and/or bay water which violates the AB 411 Ocean Water-Contact Sports Standards may cause illness to the public, the Orange County Health Care Agency recommends staying out of the water at all beach areas that are posted with the health warning sign shown below.



### ***Postings for all Orange County Beach Areas 2000 – 2001 (April – October)***

As required by the California Health and Safety Code, violations of the AB 411 Ocean Water-Contact Sports Standards between April 1 and October 31 must be reported to the California State Water Resources Control Board by all California coastal counties on a monthly basis.

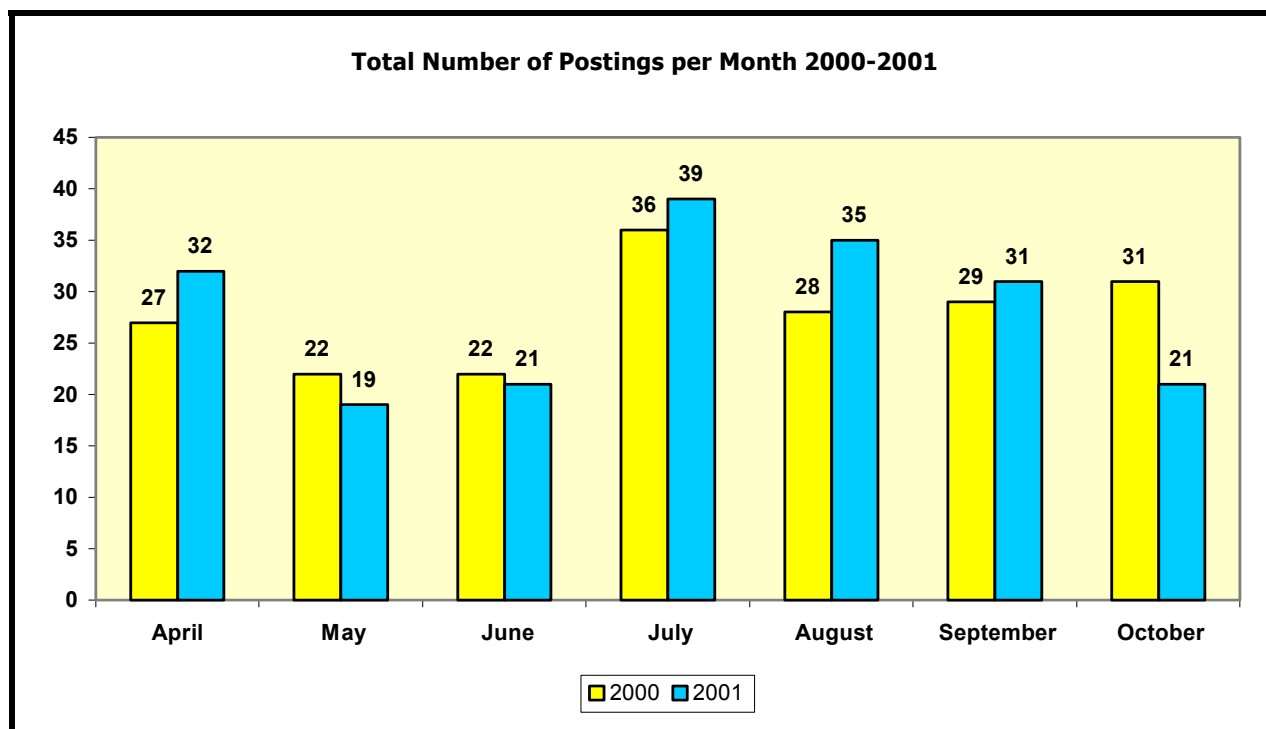
The information provided in this section is the data reported to the California State Water Resources Control Board between April 1 and October 31, beginning with the year 2000, the first full calendar year that the AB 411 Ocean Water-Contact Sports Standards were in place.

The following table shows the total number of postings, total number of days posted, and total number of Beach Mile Days posted due to violations of AB 411 standards between April 1 and October 31 for all Orange County beach areas.

<b>Year</b>	<b>Postings</b>	<b>Days</b>	<b>Beach Mile Days</b>
<b>2000</b>	199	2,123	362.8
<b>2001</b>	202	2,150	279.3

Note: this table does not include Newport Slough data because no samples were collected in 2000.

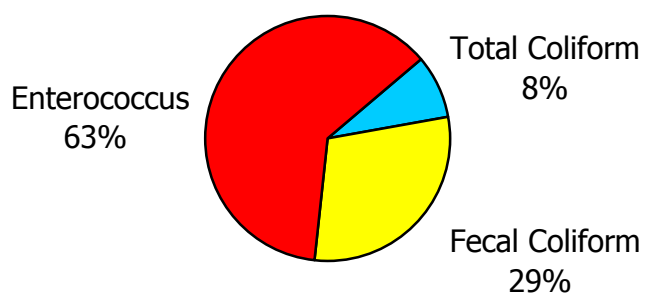
The following bar graph compares the total number of AB 411 standards violations postings per month for all Orange County ocean and bay areas between April 1 and October 31 for 2000 and 2001.



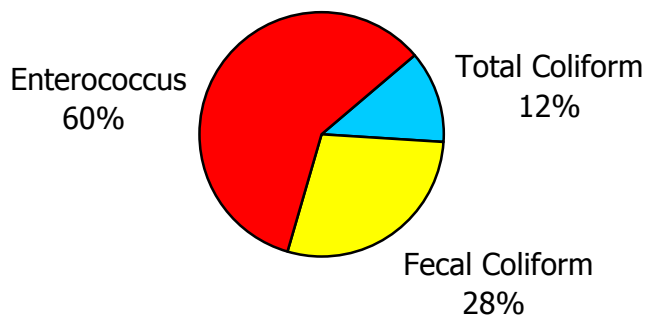
### ***Postings by Indicator Bacteria 2000 – 2001 (April – October)***

The following pie charts indicate that violations of the AB 411 enterococcus standard accounted for a majority of the ocean and bay water postings that occurred in Orange County between April 1 and October 31 for both 2000 and 2001.

**2000 Postings by Indicator Bacteria**



**2001 Postings by Indicator Bacteria**





## **Appendix I**

### ***Postings by Beach Area 2000 – 2001 (April – October)***

The following tables, arranged in geographical order, provide sample collection information for each Orange County beach area and indicates the total number of postings, total number of days posted, and the total number of Beach Mile Days posted due to AB 411 standards violations between April 1 and October 31 for 2000 and 2001.

The beach areas and data included in this section are consistent with the information provided to the California State Water Resources Control Board as required by the California Health and Safety Code.

#### **SEAL BEACH / SURFSIDE**

**Sampling Agency:** Orange County Environmental Health  
**Sampling Frequency:** 1 sample per week  
**Sampling Stations:** 5  
**Sampling Locations:** 1<sup>st</sup> Street, 8<sup>th</sup> Street, South of Pier, 14<sup>th</sup> Street, Sea Way

<b>Year</b>	<b>Postings</b>	<b>Days</b>	<b>Beach Mile Days</b>
<b>2000</b>	6	47	3.7
<b>2001</b>	3	6	0.4

#### **SUNSET BEACH**

**Sampling Agency:** Orange County Environmental Health  
**Sampling Frequency:** 1 sample per week  
**Sampling Stations:** 1  
**Sampling Locations:** Broadway

<b>Year</b>	<b>Postings</b>	<b>Days</b>	<b>Beach Mile Days</b>
<b>2000</b>	0	0	0
<b>2001</b>	0	0	0

#### **BOLSA CHICA STATE BEACH**

**Sampling Agency:** Orange County Sanitation District  
**Sampling Frequency:** 3-5 samples per week (season dependent)  
**Sampling Stations:** 2  
**Sampling Locations:** Bolsa Chica Reserve, Bolsa Chica Beach

<b>Year</b>	<b>Postings</b>	<b>Days</b>	<b>Beach Mile Days</b>
<b>2000</b>	6	12	5.4
<b>2001</b>	1	1	0.1

### **HUNTINGTON HARBOUR**

**Sampling Agency:** Orange County Environmental Health  
**Sampling Frequency:** 1 sample per week  
**Sampling Stations:** 13  
**Sampling Locations:** Sunset Aquatic Marina, Mother's Beach, Trinidad Lane Beach, Sea Gate, Humboldt Beach, Davenport Beach, Clubhouse Marina, Harbour Channel, 11<sup>th</sup> Street Beach, Admiralty Drive, Anderson Street Marina, Anaheim Bay Gas Dock, Coral Cay Beach

<b>Year</b>	<b>Postings</b>	<b>Days</b>	<b>Beach Mile Days</b>
<b>2000</b>	16	100	4.7
<b>2001</b>	34	182	18.0

### **HUNTINGTON CITY BEACH**

**Sampling Agency:** Orange County Sanitation District  
**Sampling Frequency:** 3-5 samples per week (season dependent)  
**Sampling Stations:** 4  
**Sampling Locations:** Bluffs, 17<sup>th</sup> Street, Jack's Snack Bar, Beach Blvd.

<b>Year</b>	<b>Postings</b>	<b>Days</b>	<b>Beach Mile Days</b>
<b>2000</b>	6	10	10.1
<b>2001</b>	10	16	1.4

### **HUNTINGTON STATE BEACH**

**Sampling Agency:** Orange County Sanitation District  
**Sampling Frequency:** 3-5 samples per week (season dependent)  
**Sampling Stations:** 5  
**Sampling Locations:** Beach Blvd., Newland Street, Magnolia Street, Brookhurst Street, Santa Ana River Mouth

<b>Year</b>	<b>Postings</b>	<b>Days</b>	<b>Beach Mile Days</b>
<b>2000</b>	28	223	67.6
<b>2001</b>	29	70	14.8

### **NEWPORT BAY**

**Sampling Agency:** Orange County Environmental Health  
**Sampling Frequency:** 1 sample per week  
**Sampling Stations:** 31  
**Sampling Locations:** Newport Dunes (East, Middle, West, and North), Vaughn's Launch, Ski Zone, North Star Beach, Bayshore Beach, De Anza, 43<sup>rd</sup> Street, 38<sup>th</sup> Street, 33<sup>rd</sup> Street, Newport Blvd. Bridge, Lido Yacht Club Beach, Via Genoa Beach, Rhine Channel, 19<sup>th</sup> Street Beach, 15<sup>th</sup> Street Beach, 10<sup>th</sup> Street Beach, Alvarado/Bay Isle Beach, N Street Beach, Garnet Avenue Beach, Ruby Avenue Beach, Sapphire Avenue Beach, Grand Canal, Abalone Avenue Beach, Park Avenue Beach, Onyx Avenue Beach, Promontory Point Channel, Harbor Patrol Beach, Rocky Point Beach

Year	Postings	Days	Beach Mile Days
2000	56	929	32.0
2001	68	931	39.0

### **NEWPORT SLOUGH**

**Sampling Agency:** Orange County Environmental Health  
**Sampling Frequency:** 1 sample per week  
**Sampling Stations:** 2  
**Sampling Locations:** Lancaster Street Beach, Grant Street

Year	Postings	Days	Beach Mile Days
2000	N/A	N/A	N/A
2001	6	324	3.5

### **NEWPORT BEACH**

**Sampling Agency:** Orange County Sanitation District, Orange County Environmental Health  
**Sampling Frequency:** 1-5 samples per week (agency and season dependent)  
**Sampling Stations:** 8  
**Sampling Locations:** Orange Street, 52<sup>nd</sup>/53<sup>rd</sup> Street, 38<sup>th</sup> Street, 15<sup>th</sup>/16<sup>th</sup> Street, Balboa Pier, The Wedge, Corona Del Mar State Beach, Little Corona

Year	Postings	Days	Beach Mile Days
2000	8	18	2.2
2001	8	13	0.7

**CRYSTAL COVE STATE PARK**

**Sampling Agency:** Orange County Environmental Health, Orange County Sanitation District  
**Sampling Frequency:** 1-5 samples per week (agency and season dependent)  
**Sampling Stations:** 4  
**Sampling Locations:** Pelican Point, Crystal Cove, Muddy Creek, El Morro Beach

Year	Postings	Days	Beach Mile Days
2000	9	21	1.3
2001	3	5	0.3

**LAGUNA BEACH**

**Sampling Agency:** Orange County Environmental Health, South Orange County Wastewater Authority  
**Sampling Frequency:** 1-2 samples per week (agency dependent)  
**Sampling Stations:** 7  
**Sampling Locations:** Emerald Bay, Crescent Bay, Laguna Main Beach, Hotel Laguna, Bluebird Canyon, Victoria Beach, Blue Lagoon

Year	Postings	Days	Beach Mile Days
2000	15	34	1.9
2001	5	10	0.6

**ALISO BEACH & SOUTH LAGUNA BEACH**

**Sampling Agency:** South Orange County Wastewater Authority  
**Sampling Frequency:** 2 samples per week  
**Sampling Stations:** 10  
**Sampling Locations:** Treasure Island Pier, Treasure Island Sign, Aliso-North, Aliso-Middle, Aliso-South, Camel Point, Table Rock, Laguna Lido Apartments, 9<sup>th</sup> Street /1000 Steps Beach, Three Arch Bay

Year	Postings	Days	Beach Mile Days
2000	12	22	1.6
2001	4	5	0.7



**DANA POINT**

**Sampling Agency:** Orange County Environmental Health, South Orange County Wastewater Authority  
**Sampling Frequency:** 1-2 samples per week (agency and season dependent)  
**Sampling Stations:** 5  
**Sampling Locations:** Monarch Beach - North, Monarch Beach - South, Salt Creek Beach, Dana Strands, Marine Institute Beach

Year	Postings	Days	Beach Mile Days
2000	4	42	2.5
2001	7	13	0.9

**DANA POINT HARBOR**

**Sampling Agency:** Orange County Environmental Health, South Orange County Wastewater Authority  
**Sampling Frequency:** 1-2 samples per week (agency and season dependent)  
**Sampling Stations:** 11  
**Sampling Locations:** Fuel Dock, Baby Beach (West End, Buoy Line, Swim Area, East End), Pier, Pilgrim Dock, Youth Dock, Harbor Entrance, Guest Dock, Harbor Patrol Dock

Year	Postings	Days	Beach Mile Days
2000	10	206	7.9
2001	8	420	20.0

**DOHENY STATE BEACH**

**Sampling Agency:** South Orange County Wastewater Authority, Orange County Environmental Health  
**Sampling Frequency:** 1-2 samples per week (agency and season dependent)  
**Sampling Stations:** 8  
**Sampling Locations:** North Beach, 250' North of San Juan Creek, San Juan Creek/Ocean Interface, 250' South of San Juan Creek, 1000' South of Outfall, 2000' South of Outfall, 3000' South of Outfall, 4000' South of Outfall

Year	Postings	Days	Beach Mile Days
2000	9	165	140.3
2001	5	191	148.4

**CAPISTRANO COUNTY BEACH**

**Sampling Agency:** South Orange County Wastewater Authority, Orange County Environmental Health  
**Sampling Frequency:** 1-2 samples per week (agency and season dependent)  
**Sampling Stations:** 1  
**Sampling Locations:** Capistrano County Beach

Year	Postings	Days	Beach Mile Days
2000	4	128	12.4
2001	5	98	5.8

**CAPISTRANO BAY DISTRICT BEACH**

**Sampling Agency:** South Orange County Wastewater Authority, Orange County Environmental Health  
**Sampling Frequency:** 1-2 samples per week (agency and season dependent)  
**Sampling Stations:** 2  
**Sampling Locations:** 7500' South of Outfall, 10,000' South of Outfall

Year	Postings	Days	Beach Mile Days
2000	2	53	59.6
2001	5	31	4.6

**POCHE BEACH**

**Sampling Agency:** South Orange County Wastewater Authority, Orange County Environmental Health  
**Sampling Frequency:** 1-2 samples per week (agency and season dependent)  
**Sampling Stations:** 1  
**Sampling Locations:** Poche Beach

Year	Postings	Days	Beach Mile Days
2000	3	104	5.7
2001	3	145	19.8

### **SAN CLEMENTE CITY & STATE BEACH**

**Sampling Agency:** South Orange County Wastewater Authority, Orange County Environmental Health

**Sampling Frequency:** 1-2 samples per week (agency and season dependent)

**Sampling Stations:** 5

**Sampling Locations:** North Beach, Lifeguard Headquarters, Trafalgar Street ("T" Street), Avenida Calafia, Avenida de Las Palmeras

Year	Postings	Days	Beach Mile Days
2000	5	13	3.9
2001	4	13	3.8



**San Clemente Pier, San Clemente**



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